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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,234	02/27/2004	In-Kwang Yu	6192.0359.US	4801
23345	7590	11/25/2005	EXAMINER	
MCGUIREWOODS, LLP			CHEN, WEN YING PATTY	
1750 TYSONS BLVD			ART UNIT	
SUITE 1800			PAPER NUMBER	
MCLEAN, VA 22102			2871	

DATE MAILED: 11/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/787,234	Applicant(s) YU, IN-KWANG	
	Examiner Wen-Ying P. Chen	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-13 and 16-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-13 and 16-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's Amendment filed Sept. 7, 2005 has been received and entered. Claims 10, 14 and 15 are cancelled per the Amendment and claim 21 is newly added. Therefore, claims 1-9, 11-13 and 16-21 are pending in the current application.

Claim Rejections - 35 USC § 103

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (US 6414741) in view of Sekiguchi (US 2004/0046909).

With respect to claims 1 and 12-13 (Amended): Hasegawa et al. disclose a system and method of manufacturing a liquid crystal display comprising:

a panel manufacturing unit for manufacturing a liquid crystal panel assembly including a thin film transistor (TFT) (Fig. 1, element 12) and a liquid crystal layer interposed between the TFT array panel and the opposing array panel (Column 4, lines 22-27);

a printed circuit film bonding unit (Fig. 1, element 22) for bonding a printed circuit film on the panel assembly (Column 4, lines 22-42); and

an inspection unit (Fig. 9, element 104) for inspecting the bonding of the printed circuit film on the panel assembly, wherein the bonding inspection unit comprises two sub-units for inspection before and after the bonding of the PCB, respectively (Column 6, lines 56-67, Column 7, lines 1-67, Column 8, lines 1-62 and Column 12, lines 6-11; wherein the dummy lead wires

Art Unit: 2871

and the aligning marks are provided for inspection of the bonding of the PCB, before and after bonding).

However, Hasegawa et al. fail to specifically disclose that the opposing array substrate is of a color filter array panel and that the wire board is specifically a printed circuit board (PCB).

Sekiguchi, on the other hand, discloses a liquid crystal display panel comprising a color filter array panel (Paragraph 0137). Furthermore, Sekiguchi discloses the use of a printed circuit board (PCB), which is also a wiring board, bonding unit for bonding a PCB to the printed circuit film (Paragraph 0144).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture a liquid crystal panel with a color filter array panel and bonding the printed circuit film to a printed circuit board as taught by Sekiguchi with the system and method of manufacturing of the liquid crystal panel taught by Hasegawa et al., since Sekiguchi teaches that the use of PCB enables the application of signals to the driving ICs of the display panel having the same function as the wiring board (Paragraph 0144) and that the color filter array panel provides coloring to the display panel.

As to claim 2: Hasegawa et al. further disclose that the printed circuit film comprises a tape carrier package (Column 4, line 38).

As to claim 3: Hasegawa et al. further disclose that the inspection unit comprises a CCD camera (Fig. 9, element 104).

As to claims 4-6: Hasegawa et al. further disclose that the printed circuit film bonding unit bonds the printed circuit film on the panel assembly with an anisotropic conductive film

Art Unit: 2871

(ACF) by compression (Column 4, lines 48-52), wherein the ACF comprises an adhesive containing a plurality of conductive particles (Column 7, line 63).

As to claim 7: Hasegawa et al. further disclose that the inspection unit detects dents generated by the compression (Column 7, lines 56-67; wherein the shape of the conductive particles post compression along the substrate face is observed).

As to claim 8: Hasegawa et al. further disclose that the inspection unit detects alignment of the printed circuit film with the panel assembly (Column 6, lines 56-67).

As to claim 9: Hasegawa et al. further disclose that the bonding inspection unit is incorporated into the printed circuit film bonding unit (Column 6, lines 56-67; Fig. 7, elements 114 and 117; wherein the inspection unit comprises of the dummy lead wires and the branch wires).

As to claim 11: Hasegawa et al. further disclose that the bonding inspection unit wherein one of the sub-units of the bonding inspection unit is incorporated into the printed circuit film bonding unit and the other of the sub-units of the bonding inspection unit is incorporated into the wiring board bonding unit (Column 6, lines 56-67 and Column 8, lines 45-54; wherein the dummy lead wires are incorporated into the printed circuit film bonding unit for before bonding of the wire board inspection and the aligning marks are incorporated into the wire board bonding unit for post bonding of the wire board inspection).

As to claim 16: Hasegawa et al. further disclose that the printed circuit film comprises a tape carrier package (Column 4, line 38).

As to claim 17: Hasegawa et al. disclose that the inspection unit comprises a CCD camera (Fig. 9, element 104).

As to claim 18: Hasegawa et al. further disclose that the printed circuit film bonding unit bonds the printed circuit film on the panel assembly with an anisotropic conductive film (ACF) (Column 4, lines 48-52) containing a plurality of conductive particles (Column 7, line 63).

As to claims 19 and 20: Hasegawa et al. further disclose that the bonding of the printed circuit film is performed by thermo compression (Column 7, lines 43-49), and that the inspection detects dents generated by the thermo compression (Column 7, lines 56-67; wherein the shape of the conductive particles post compression along the substrate face is observed).

As to claim 21 (New): Hasegawa et al. disclose a system of manufacturing a liquid crystal display comprising:

a panel manufacturing unit for manufacturing a liquid crystal panel assembly including a thin film transistor (TFT) (Fig. 1, element 12) and a liquid crystal layer interposed between the TFT array panel and the opposing array panel (Column 4, lines 22-27);

a printed circuit film bonding unit (Fig. 1, element 22) for bonding a printed circuit film on the panel assembly (Column 4, lines 22-42); and

an inspection unit (Fig. 9, element 104) for inspecting the strength of bonding of the printed circuit film on the panel assembly, wherein the bonding inspection unit comprises two sub-units for inspection before and after the bonding of the PCB, respectively (Column 6, lines 56-67, Column 7, lines 1-67, Column 8, lines 1-62 and Column 12, lines 6-11; wherein the dummy lead wires and the aligning marks are provided for inspection of the bonding of the PCB, before and after bonding).

However, Hasegawa et al. fail to specifically disclose that the opposing array substrate is of a color filter array panel and that the wire board is specifically a printed circuit board (PCB).

Art Unit: 2871

Sekiguchi, on the other hand, discloses a liquid crystal display panel comprising a color filter array panel (Paragraph 0137). Furthermore, Sekiguchi discloses the use of a printed circuit board (PCB), which is also a wiring board, bonding unit for bonding a PCB to the printed circuit film (Paragraph 0144).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture a liquid crystal panel with a color filter array panel and bonding the printed circuit film to a printed circuit board as taught by Sekiguchi with the system and method of manufacturing of the liquid crystal panel taught by Hasegawa et al., since Sekiguchi teaches that the use of PCB enables the application of signals to the driving ICs of the display panel having the same function as the wiring board (Paragraph 0144) and that the color filter array panel provides coloring to the display panel.

Response to Arguments

Applicant's arguments filed Sept. 7, 2005 have been fully considered but they are not persuasive.

Regarding claims 1 and 12, Applicant argues that there is no motivation for replacing the wiring board disclosed by Hasegawa with the PCB disclosed by Sekiguchi and that the wiring board and the PCB perform the same function (see Page 10 of Arguments). However, a PCB is the same as a wiring board, and the examiner merely cites the PCB as disclosed by Sekiguchi so as to meet the claim language. The PCB disclosed by Sekiguchi is not to replace the wiring board as disclosed by Hasegawa, since both have the same functions, and therefore are equivalent.

Art Unit: 2871

Regarding claim 10, Applicant argues that Hasegawa fails to teach inspecting the bonding of the printed circuit film on the panel assembly after the bonding of the PCB. However, in Column 12 lines 6-11, Hasegawa disclosed that an alignment inspection is performed after bonding of the wiring board by using the alignment marks.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Ying P. Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2871

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wen-Ying P Chen
Examiner
Art Unit 2871

WPC
11/21/05


ANDREW SCHECHTER
PRIMARY EXAMINER